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10/002,148	12/05/2001	Kuniteru Sakakibara	018656-238	3880

7590 12/18/2003	**EXAMINER**
Platon N. Mandros	MCCARTNEY, LINZY T
BURNS, DOANE, SWECKER & MATHIS, L.L.P.	

ART UNIT	PAPER NUMBER
2671	3

P.O. Box 1404
Alexandria, VA 22313-1404

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Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/002,148	SAKAKIBARA, KUNITERU
	Examiner	Art Unit	
	Linzy McCartney	2671	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _17 January 2002_.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-22_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-22_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _05 December 2001_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

    a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)	4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) ☐ Notice of Informal Patent Application (PTO-152)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _2_ .	6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2.   Claims 1, 2, 6, 8, 11, 13, 14,18, 19 and 22 are rejected under 35 U.S.C. 102(b) as being

clearly anticipated by U.S. Patent No. 5,550,937 to Bell et al (Bell).

a.   Referring to claim 1, Bell discloses an acquiring portion for acquiring a first

original data set and second original data set, the first original data set and the second

original data set respectively representing first and second original data set respectively

representing first and second original images, each of the first and second original images

being obtained by imaging a same object from differing observation points (Fig. 1;

column 5, lines 43-62); a resolution multiplication unit for converting the first original

data set and the second original data set to a first low resolution data set and a second low

resolution data set respectively (Fig. 2; column 5, lines 63 – column 6, line 2); a three-

dimensional generating portion for generating a three-dimensional data set using the first

original data set and the second original data set and the first low resolution data set and

the second low resolution data set; wherein the three-dimensional data set comprises a

first part and a second part, the first part is generated using the first original data set and

second original data set, and the second part is generated using the first low resolution

data set and the second low resolution data set (Fig, 9; column 8, lines 6-61; column 4,

lines 1-9. Note that the collection of three-dimensional cross-correlation surfaces are

iteratively generated starting with the lowest resolution version data set and using

increasingly higher resolution versions of the captured data up to and including the

original data set).

b.   Referring to claim 2, Bell discloses an extracting portion for extracting a first

partial image from the first original image (column 7, lines 36-49); and a seeking portion

for seeking corresponding points to points in the first partial image within the second

original image; wherein the first part of three-dimensional data set is generated by the

sought corresponding points (column 8, lines 46-61).

c.   Referring to claim 6, Bell discloses a device for inputting multiple images having

a first resolution from different viewpoints of an object (Fig. 1; column 5, lines 43-62); a

converter for performing a resolution conversion of each the input multiple images to

generate converted images having a second resolution that is different that the first

resolution (Fig. 2; column 5, lines 63 – column 6, line 2); a characteristic area extraction

unit for detecting characteristic areas of the object from at least one on the input multiple

images (column 7, lines 36-49); and a three-dimensional construction unit for

constructing three-dimensional data by using data from input images for the characteristic

areas of the object and by using data from the converted images for remaining areas of

the object (Fig, 9; column 8, lines 6-61).

d.   Referring to claim 8, Bell discloses wherein the first resolution is higher than the

second resolution (Fig. 2; column 5, line 63 – column 6, line 2).

e.   Referring to claim 11, Bell discloses wherein a device for inputting images that include images obtained from different viewpoints of an object and having different resolutions (Figs. 1 and 2; column 5, line 42- column 6, line 2); a characteristic area extraction unit for selecting specific areas from at least one image (column 7, lines 36-49); and a three-dimensional construction unit for reconstructing three-dimensional data by using, from among said multiple images having different resolutions, high-resolution images for the selected areas, and low-resolution images for the non-selected areas, and by seeking correspondence between the images obtained from different viewpoints (column 7, lines 37-49; column 8, lines 46-61; Fig. 9).

f.   Referring to claim 13, Bell discloses acquiring a first original data set and second original data set, the first original data set and the second original data set respectively representing first and second original images, each of the first and second original images being obtained by imaging a same object from differing observation points (Fig. 1; column 5, lines 43-62); converting the first original data set and the second original data set to a first low resolution data set and a second low resolution data set respectively (Fig. 2; column 5, lines 63 – column 6, line 2); generating a three-dimensional data set using the first original data set and the second original data set and the first low resolution data set and the second low resolution data set; wherein the three-dimensional data set comprises a first part and a second part, the first part is generated using the first original data set and second original data set, and the second part is generated using the first low resolution data set and the second low resolution data set (Fig, 9; column 8, lines 6-61).

g.   Referring to claim 14, Bell discloses extracting a first partial image from the first

original image (column 7, lines 36-49); and a seeking portion for seeking corresponding

points to points in the first partial image within the second original image; wherein the

first part of three-dimensional data set is generated by the sought corresponding points

(column 8, lines 46-61).

h.   Referring to claim 18, Bell discloses inputting multiple images having a first

resolution from different viewpoints of an object (Fig. 1; column 5, lines 43-62);

performing a resolution conversion of each the input multiple images to generate

converted images having a second resolution that is different that the first resolution (Fig.

2; column 5, lines 63 – column 6, line 2); detecting characteristic areas of the object from

at least one on the input multiple images (column 7, lines 36-49); constructing three-

dimensional data by using data from input images for the characteristic areas of the object

and by using data from the converted images for remaining areas of the object (Fig, 9;

column 8, lines 6-61).

i.   Referring to claim 19, Bell discloses wherein the first resolution is higher than the

second resolution (Fig. 2; column 5, line 63 – column 6, line 2).

j.   Referring to claim 22, Bell discloses a program for generating three-dimensional

data according to the method of claim 13 (column 5, lines 36-42).

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4.   Claims 3, 5, 15, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bell as applied to claims 1 and 13 above further in view of Akimoto et al., "Automatic Creation of 3D Facial Models" (Akimoto).

a.   Referring to claim 3, Bell discloses a three-dimensional reconstruction portion for producing three-dimensional position data using the first low resolution data set and the second low resolution data set (column 8, lines 6-61). Bell does not explicitly disclose a standard model fitting portion for fitting a standard model to the produced three-dimensional position data to generate the three-dimensional data set. Akimoto discloses a standard model fitting portion for fitting a standard model to the produced three-dimensional position data to generate the three-dimensional data set (Fig. 8; page 19, column 1, paragraph 2 – page 20, column 1, paragraph 3). At the time the invention was made, it would have been obvious to one of ordinary to modify the apparatus of Bell by fitting a standard model to the produced three-dimensional position data to generate the three-dimensional data set as taught by Akimoto. The suggestion/motivation for doing so would have been because it would allow the creation of animation directly from the created model (Akimoto, page 16, column 2, paragraph 2).

b.   Referring to claim 5, Bell discloses an extracting portion for extracting high precision areas from the first original data set (column 7, lines 36-49; Fig. 7); wherein the first part of three-dimensional data set comprises the extracted high precision areas (column 8, lines 46-61).

c.   Referring to claim 15, Bell discloses producing three-dimensional position data

using the first low resolution data set and the second low resolution data set (column 8,

lines 6-61). Akimoto discloses fitting a standard model to the produced three-dimensional

position data to generate the three-dimensional data set (Fig. 8; page 19, column 1,

paragraph 2 – page 20, column 1, paragraph 3).

d.   Referring to claim 17, Bell extracting high precision areas from the first original

data set (column 7, lines 36-49; Fig. 7); wherein the first part of three-dimensional data

set comprises the extracted high precision areas (column 8, lines 46-61).

5.   Claims 4, 12, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bell

in view of Akimoto as applied to claim 3 and 15 above further in view of U.S. Patent No.

6,532,011 to Francini et al. (Francini).

a.   Referring to claim 4, Bell discloses a seeking portion for seeking corresponding

points to points in the first partial image within the second original image; wherein the

first part of three-dimensional data set is generated by the sought corresponding points

(column 8, lines 46-61). Bell does not explicitly disclose an extracting portion for

projecting high-precision areas of the standard model onto the first image and extracting

the projected areas as a first partial image. Francini discloses extracting portion for

projecting high-precision areas of the standard model onto the first image and extracting

the projected areas as a first partial image (column 7, lines 52-60; column 5, lines 19-26;

Fig. 4). At the time the invention was made, it would have been obvious to one of

ordinary skill in the art to modify the apparatus of Bell by including an extracting portion

for projecting high-precision areas of the standard model onto the first image and

extracting the projected areas as a first partial image as taught by Francini. The suggestion/motivation for doing so would have been because it would allow the creation of models that appear realistic in static and animated conditions (Francini, column 1, lines 41-46).

b.   Referring to claim 12, Bell discloses a device for inputting multiple images obtained from different viewpoints (Fig. 1; column 5, lines 43-62); a converter for performing resolution conversion regarding each of the input multiple images and generating multiple images having different resolutions (Fig. 2; column 5, lines 63 – column 6, line 2); a searching unit for seeking correspondence between the images obtained from different viewpoints using low-resolution images and reconstructing low-resolution three-dimensional data (column 8, lines 46-61); a correspondence seeking unit for seeking correspondence between the images obtained from different viewpoints using the high-resolution image regarding the areas projected on the higher resolution image and reconstructing high-resolution three-dimensional data (column 7, lines 36-49;column 8, lines 46-61); a replacing device for replacing the low-resolution three-dimensional data regarding said specific areas with high-resolution three-dimensional data (column 8, lines 22-34; Fig. 7). Bell does not explicitly disclose a fitting unit for fitting a standard model to the reconstructed low-resolution three-dimensional data or a unit for projecting the specific areas specified in said standard model to an image having a higher resolution that said image based on the result of fitting. Akimoto discloses a fitting unit for fitting a standard model (Fig. 8; page 19, column 1, paragraph 2 – page 20, column 1, paragraph 3). Francini discloses a unit for projecting the specific areas specified in said standard

model to an image having a higher resolution that said image (column 7, lines 52-60;

column 5, lines 19-26; Fig. 4).

    c.   Referring to claim 16, Bell discloses a seeking portion for seeking corresponding

points to points in the first partial image within the second original image; wherein the

first part of three-dimensional data set is generated by the sought corresponding points

(column 8, lines 46-61). Francini discloses projecting high-precision areas of the standard

model onto the first image and extracting the projected areas as a first partial image

(column 7, lines 52-60; column 5, lines 19-26; Fig. 4).

6.   Claims 7, 9, 10, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Bell as applied to claims 6 and 18 above further in view of U.S. Patent No. 5,422,989 to Bell et

al.

    a.   Referring to claim 7, Bell does not explicitly disclose a first memory for storing

the input multiple images and a second memory for storing the converted images. Patent

No. 5,422,989 discloses a first memory for storing the input multiple images (Fig. 4); and

a second memory for storing the converted images (Fig. 6; column 9, lines 13-34). At the

time the invention was made, it would have been obvious to one of ordinary skill in the

art to modify the invention of Bell by including first and second memories as taught by

Patent No. 5,422,989. The suggestion/motivation for doing so would have been because it

would create a user interface for simultaneously manipulating terrestrial images obtained

by a plurality of airborne sensors (Patent No. 5,422,989, column 1, lines 24-33).

b.   Referring to claim 9, Bell does not explicitly disclose wherein the data used by

the construction unit is combined and stored. Patent No. 5,422,989 discloses wherein the

data used by the construction unit is combined and stored (Fig. 6; column 9, lines 13-34).

c.   Referring to claim 10, Bell does not explicitly disclose wherein the data used by

the constructing unit is stored separately. Patent No. 5,422,989 discloses wherein the data

used by the constructing unit is stored separately. (Fig. 4; column 7, lines 24-43).

d.   Referring to claim 20, Bell does not explicitly disclose combining and storing the

three-dimensional data. Patent No. 5,422,989 discloses combining and storing the three-

dimensional data. (Fig. 6; column 9, lines 13-34).

e.   Referring to claim 21, Bell does not explicitly disclose storing the three-

dimensional data serperatley. Patent No. 5,422,989 discloses storing the three-

dimensional data serperatley (Fig. 4; column 7, lines 24-43).

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to **Linzy McCartney** whose telephone number is **(703) 605-0745**.

The examiner can normally be reached on Mon-Friday (8:00AM-5: 30PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, **Mark Zimmerman**, can be reached at **(703) 305-9798**.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

ltm
04 December 2003

MARK ZIMMERMAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600